



Technical manual

Ajax Translator



Ajax Translator is a software used for receiving events from Ajax Hub and further processing and transmission of these events to the central security console in the appropriate format. Hubs transmit data about alarms and events through a cloud server or directly to the console (firmware version Hub OS 2.0). Translator receives these data via the Internet and transmits them to the security console via the communication port link.

In other words, Translator is the bridge link between the Ajax Hub and the central monitoring station (CMS) and is used for receiving, decrypting, converting and transmitting events to the CMS using the Contact ID protocol. Messages in Contact ID format are additionally encrypted by AES 128-bit encryption. This is done to improve protection of the data being transmitted and make it impossible to edit the data. When Translator receives the encrypted message, it accepts, decrypts and then transmits the message to the CMS via a COM-port.

Ajax HUB transmits events in the SurGard shell of the Contact-ID protocol using the Internet. The message being received takes the following form: → **5PPR MTAAAAQXYZGGCCC**, where:

- **5** is the flag indicating that this message is in SurGard format. This value should always be "5".
- **PP** is the receiver number. We use the value "00".
- **R** is the number of the receiver incoming line. We use the value "0"

All other fields are the same as those in a Contact ID message:

- **AAAA** is the site's 4-digit number (0–9)
- **MT** is the message type. This is a 2-digit sequence used to identify a Contact ID message to the receiver. We use the value "18".
- **Q** is the event qualifier that provides specific information about the event:
 - "new event" or opening. It has the value "E".
 - "new recovery" or closing. It has the value "R".
- **XYZ** is the event code (from 001 to 999). In addition, every 15 minutes the system sends test pings with the code **E602**. The table below lists codes for all events.
- **GG** is the group or partition number (2 digits from 00 to 99). 00 is used to indicate that the information about the group or partition is not being used.
- **CCC** is the zone number (Event reports) (3 digits from 000 to 999). 000 is used to indicate that no specific information about a zone or a user is being used.

E indicates events.

R is recovery

Event codes

Security alarms

130	Alarm within the zone
-----	-----------------------

Emergency alarms

120	Panic button has been pressed
-----	-------------------------------

Fire alarms

110	Smoke alarm
-----	-------------

114	Alarm generated by heat sensor: excess temperature detected
-----	---

General alarms

144	Breakage of detector tamper
-----	-----------------------------

145	Breakage of Ajax HUB tamper
-----	-----------------------------

Non-security alarms

154	Alarm: water leak
-----	-------------------

162	Alarm: carbon monoxide
-----	------------------------

Alarm using the keypad

423	Code entered under duress
-----	---------------------------

461	Code guessing
-----	---------------

Arming/disarming

400	Disarming/arming via application
409	Disarming/arming via key fob/keypad

Failures

301	Loss of main power supply
302	Low battery voltage

Peripherals failure

344	Signal jamming detected
-----	-------------------------

Detector failures

381	Loss of connection with the detector
383	Alarm generated by the accelerometer
384	Detector battery is low
389	Hardware failure: FireProtect, FireProtect Plus detector failure
393	The chamber in a smoke detector is dust-covered

Communication problems

350	Communication is lost between the hub and the server
-----	--

System events

627	Start of updating process or application of new settings
628	Completion of updating process or application of new settings

Installation of Translator

For proper operation with the console, it must meet certain requirements.

Requirements for the console:

- 1) Supporting SurGard Contact ID
- 2) Supporting operation with COM-ports
- 3) Availability of the Internet on the PC where the console is installed
- 4) Java version starting with Version 8 Update 73

To work with Translator, extract the archive content to the folder you need.

To enter Translator, launch Translator.jar file. This file is located in the folder where you previously extracted the archive content. Enter the login and password you received in your e-mail in corresponding fields (Fig. 1).

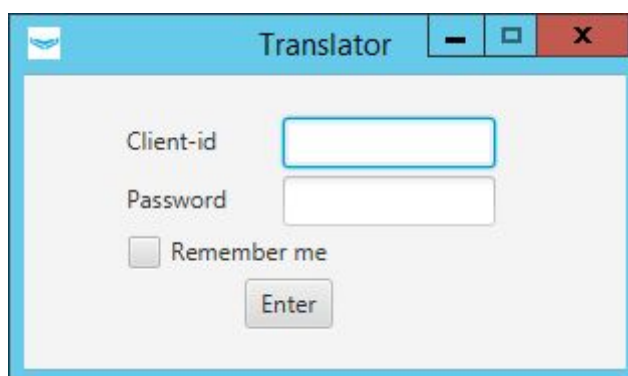


Figure 1. Translator login window

After successful login, you will see the Translator interface.



Figure 2. Translator interface

To obtain events from Translator, create a COM-port link. A pair of virtual COM-ports is usually created using software, for example, via Virtual Serial Port Driver. A trial version of the software is in the archive with Translator, which was sent to you previously.

However, you may use any similar software or a pair of hardware COM-ports. To do this, however, it is necessary to make a jumper and know the exact numbers of the port pair being used.

One of these ports should then be assigned to Translator. To do so, enter the **Settings** menu and select **CMS Connection** tab (Fig. 3).

CMS connection settings

Settings of 'Ping' messages for CMS

☒ Send 'Ping' to CMS

Ping string

Ping Hex Message

Ping period

☐ Listen for COM port ping answer

Type of connection to CMS

☐ Socket ☒ COM Port

CMS message protocol

Communication Protocol(SurGard):
5rrL18SSSSQXYZGGCCC
5- protocol number
rr= receiver number
L = line number

Receiver number (rr)

Line number (L)

Figure 3

After selecting the type of connection to the COM-port, you can configure event receipt through the previously created pair of ports.

Setting items in **ComPort** tab:

- ComNumber is the number of the COM-port to which the data will be transmitted
- Baud Rate is the data transfer speed
- Data Bits indicates the data bits
- Stop Bits indicates the stop bits
- Parity indicates parity

It is also possible to set the pings of the COM-port itself in the **CMS Connection** tab.

Ping settings:

- Ping line
- HEX message
- Ping period

As a result of a port ping you receive a message at a preset interval. The ping line will appear and a HEX message will be sent as a non-printable character.

Enter the value of one of the COM-ports created previously into the **ComNumber** field (Fig. 5). Leave all other settings as their default or change the items **Baud Rate**, **Data Bits**, **Stop Bits** and **Parity** to the values used at the receiving side.

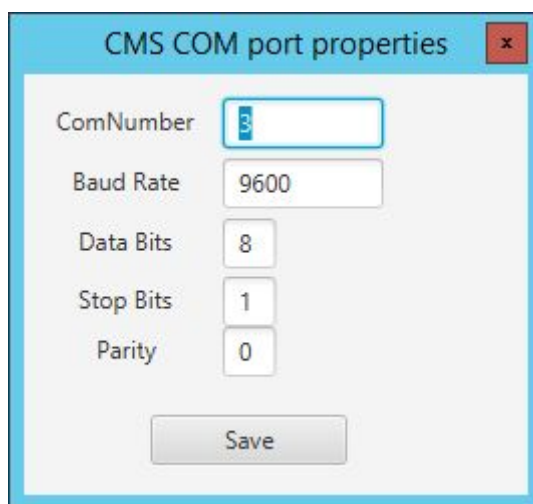


Figure 5. ComPort tab

The second port should be used as an event source from SurGard. Figures 6 and 7 below illustrate an example of COM-port application as an event source at Security Center 5 CMS.

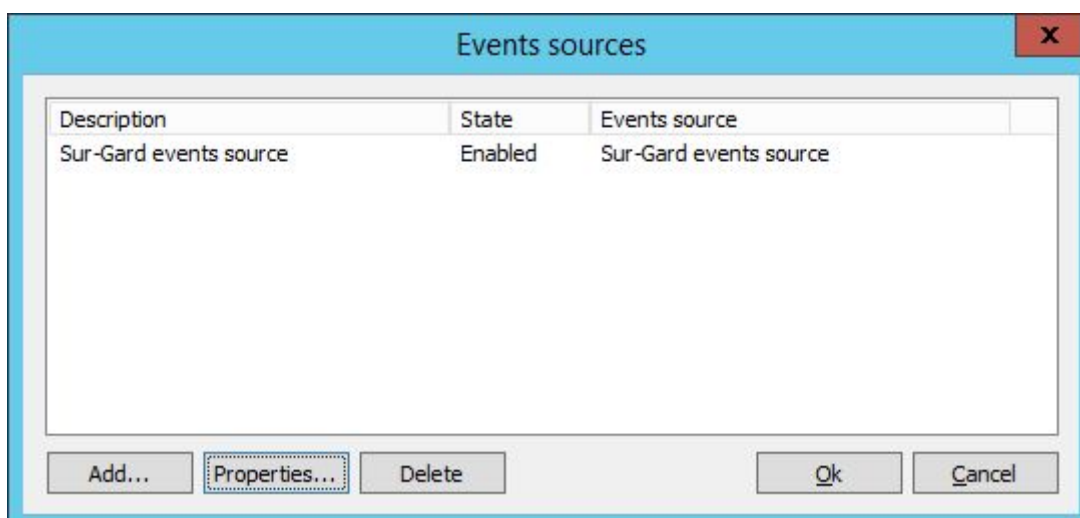


Figure 6. Event source window

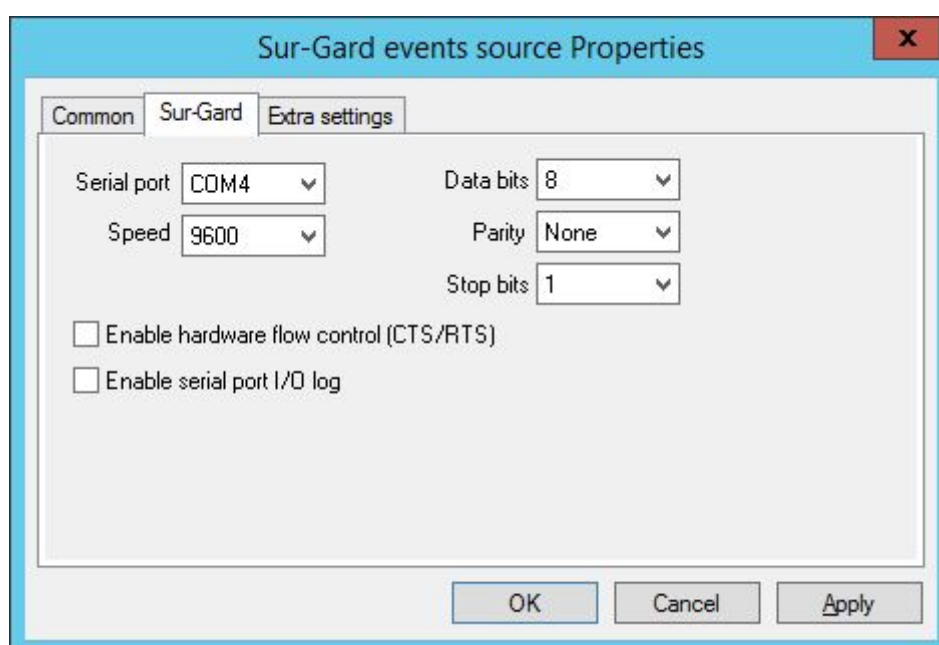


Figure 7. Application of the second COM-port as an event source

Select "Contact ID + Contact ID 4x2" in Security Center 5 CSP itself as an event template.

The feature of message sending in SurGard Contact ID format through a socket is also implemented in Translator versions 1.3 and higher. In other words, the data may be received not only via the COM-port link but also via a TCP-port.

Thus, by specifying the server IP and port in the settings, you can transfer data from one machine to another. This means it is possible to implement the data transfer in a local network.

This may be done as follows. Select the **Socket** connection type in the **CMS connection** window. Then, specify the necessary IP address and TCP-port for the data transfer (Fig. 7).

If the data should be received by the same machine where Translator is installed, it is possible to specify localhost as the IP address. Specify only the port you need, which is controlled by your security software.

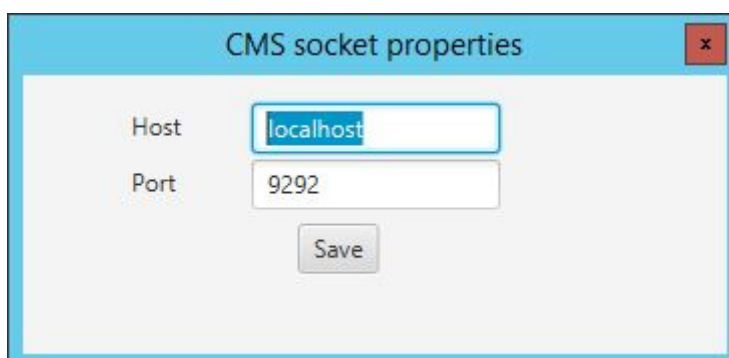


Figure 8. "Socket" tab

The **Network** tab (Figs. 8 and 9) is used to change the IP address for the server and port being used. The following IP addresses may be used:

- 178.62.38.104
- 52.57.175.225
- 52.57.131.150

All three IP addresses are indicated in Translator by default. If only one IP address is shown, specify two other ones using the ";" character.

The application may operate on two ports: 2020 and 80.

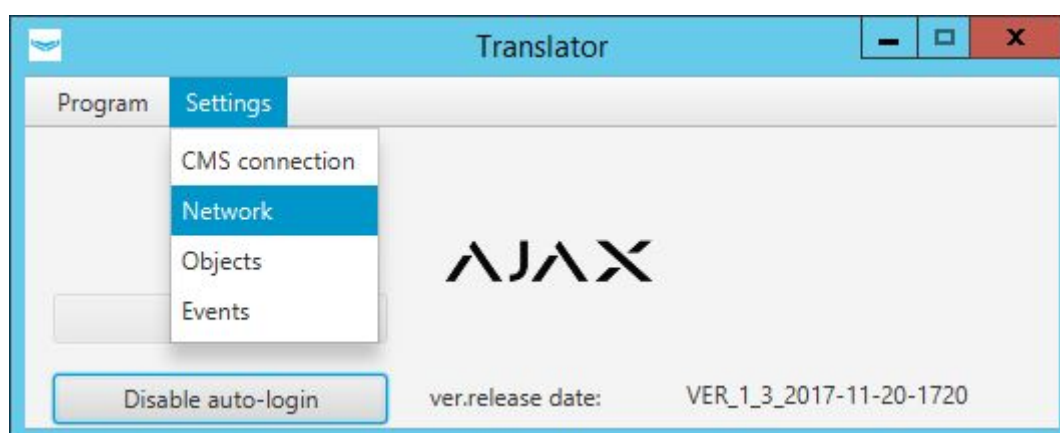


Figure 8. **Network** tab

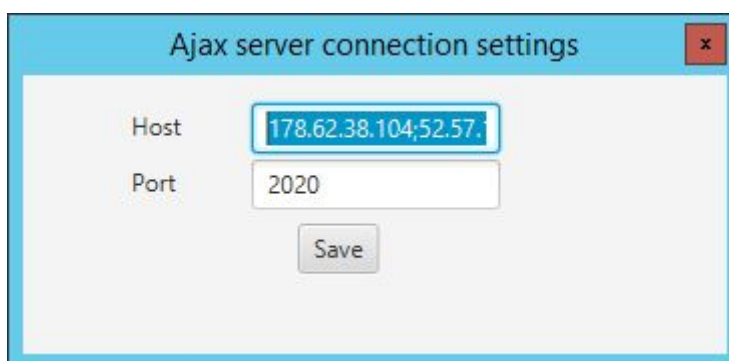


Figure 9. Content of **Network** settings item

Adding objects

If your company is not specified in the security companies list, contact the technical support service. We will help assign the hub to the account of your security company. You may then start adding objects to Translator.

After adding the hub to your account, enter the **Objects** tab (Fig. 10).

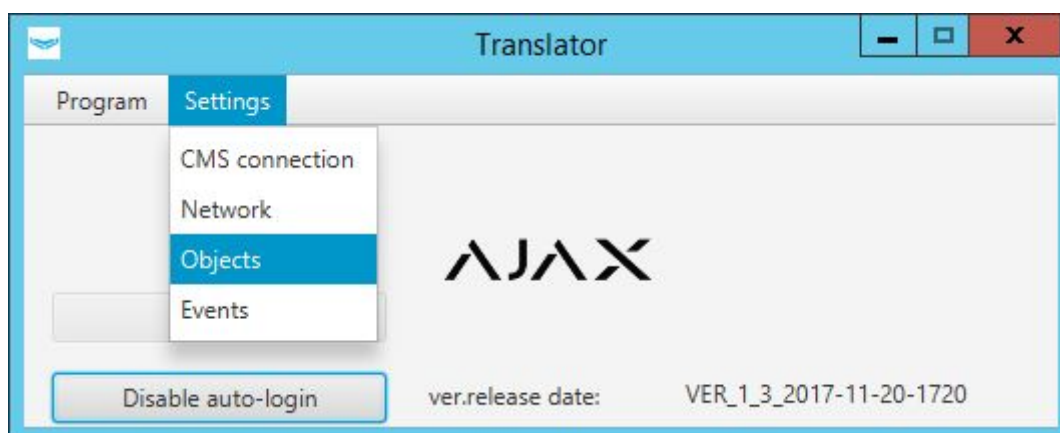


Figure 10. Objects tab

If your company is already added to the application, there is no need to contact the technical support service. After the client's request is sent via the application, you will receive the message in your e-mail that was previously specified in the request, and Ajax Hub will appear automatically in the list as the device available for binding.

Hub IDs available for binding will be shown in the left field of Translator, in the **Objects** tab (Fig. 11).

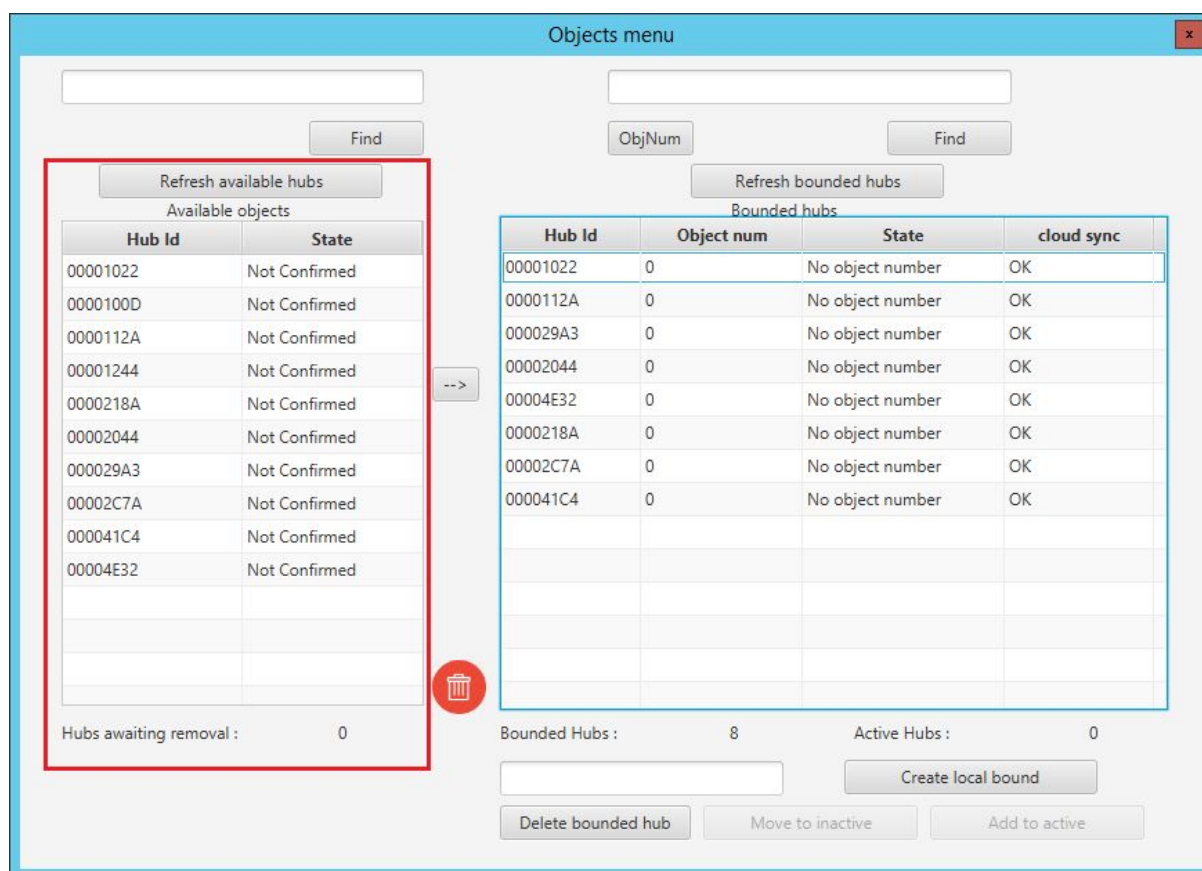


Figure 11. Left-hand field with the objects available for binding

To receive events from hubs, move the hub to the middle field. The middle field is the compliance table of the hub ID to the object number, which in turn is an additional protection against equipment takeover.

To add an object, select the required hub in the left-hand field and press the arrow key (Fig. 12).

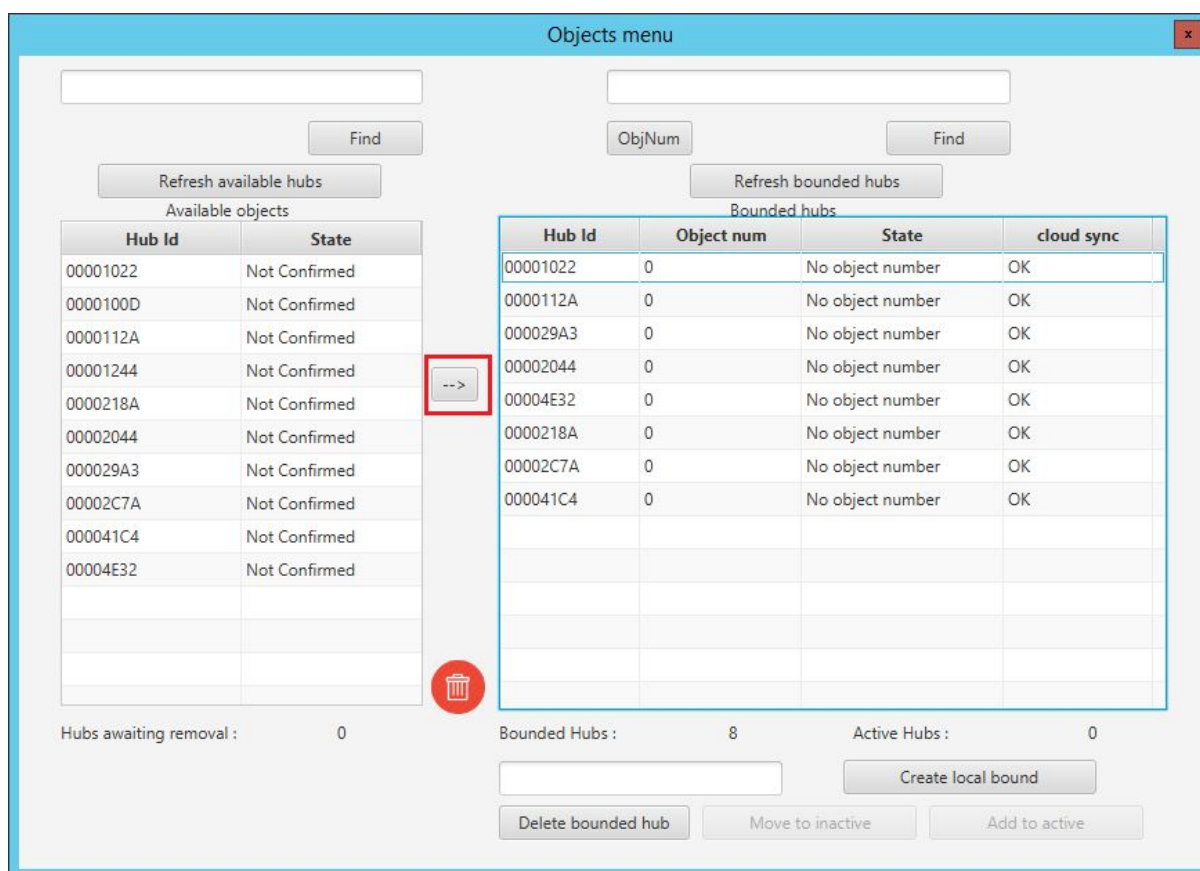


Figure 12. Add hub button

Then assign the number to the hub. To do this, double click the corresponding object number cell in the middle field (Fig. 13), enter the object required number and press ENTER. The range of possible object number values is 0 to 9999. If you enter numbers with three digits or less, there is no need to enter zeros before the digits. In other words, you may enter just "1" instead of "0001".

IMPORTANT! To receive events properly from Ajax Hub, the object number in Translator must match the object number at the CMS.

Find

Refresh available hubs

Available objects

Hub Id	State
00001022	Not Confirmed
0000100D	Not Confirmed
0000112A	Not Confirmed
00001244	Not Confirmed
0000218A	Not Confirmed
00002044	Not Confirmed
000029A3	Not Confirmed
00002C7A	Not Confirmed
000041C4	Not Confirmed
00004E32	Not Confirmed

-->

Hubs awaiting removal : 0

ObjNum

Find

Refresh bounded hubs

Bounded hubs

Hub Id	Object num	State	cloud sync
00001022	0	No object number	OK
0000112A	0	No object number	OK
000029A3	0	No object number	OK
00002044	0	No object number	OK
00004E32	0	No object number	OK
0000218A	0	No object number	OK
00002C7A	0	No object number	OK
000041C4	0	No object number	OK

Bounded Hubs : 8

Active Hubs : 0

Create local bound

Delete bounded hub

Move to inactive

Add to active

Figure 13. Assigning a number to the object

To temporarily stop event receipt from a particular Ajax Hub, select the required hub in the middle field and press the button "Add to inactive" (Fig. 14).

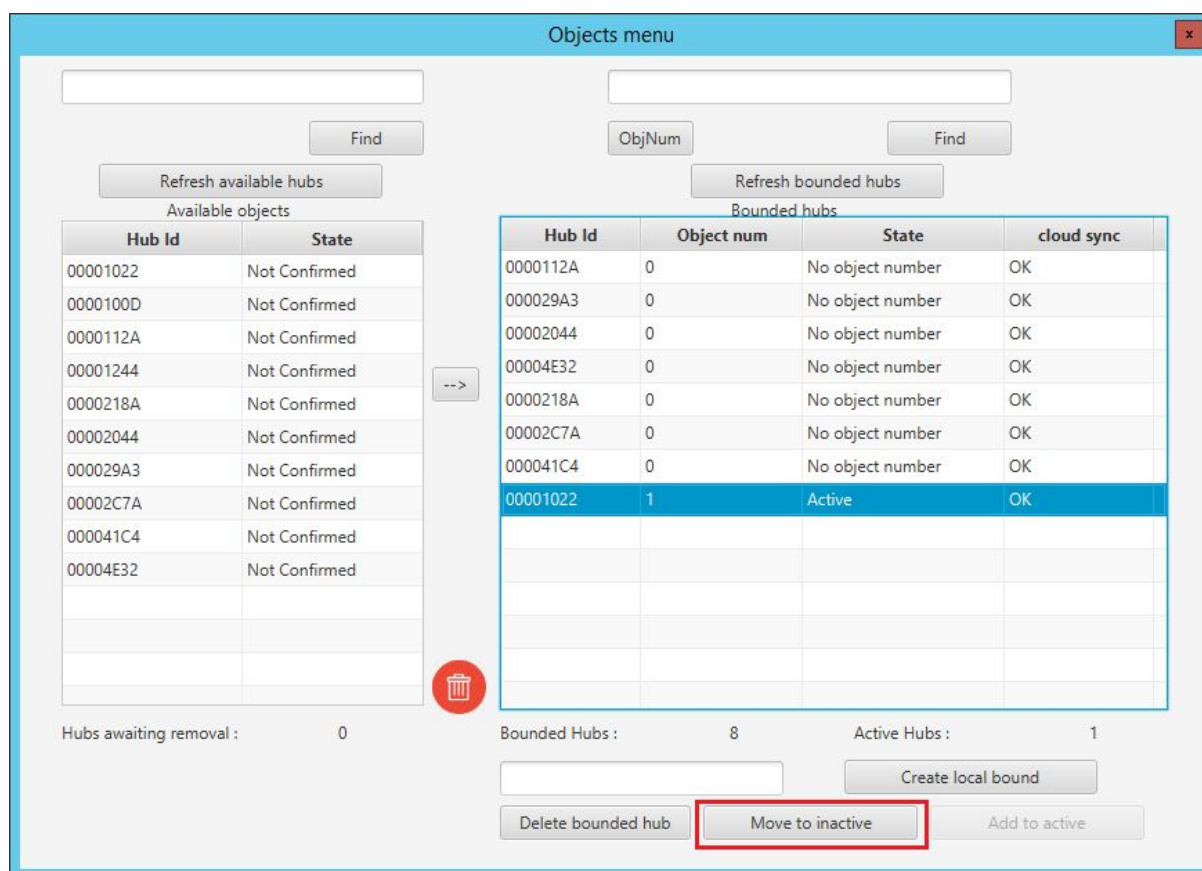


Figure 14. "Move to inactive" button

To remove an Ajax Hub from among those bound, select the necessary Ajax Hub in the middle field and press button "Remove from bound" (Fig. 15). The hub selected will then be removed from the list of bound hubs.

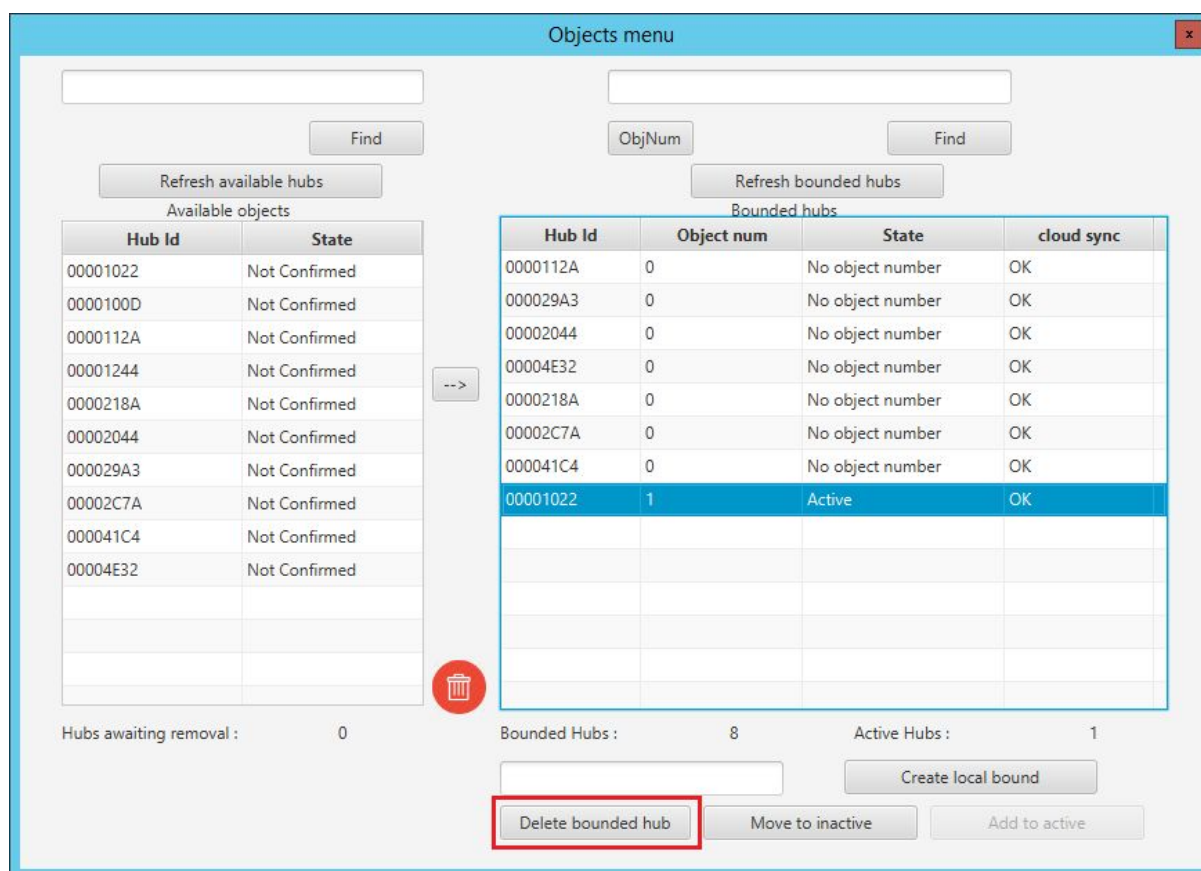


Figure 15. Remove from bound hubs button

Objects can be searched by number or by hub ID. To do this, select the search criteria using the button **under the search line** (highlighted in Fig. 16). Then, enter the search value in the search line (Fig. 17).

When **ObjNum** is selected, the search is carried out by object number. If you press the button it changes the name to **HubId**, and you may search by the hub ID.

Important! For proper searching by hub ID, only upper-case Latin alphabet characters may be used.

Find

Refresh available hubs

Available objects

Hub Id	State
00001022	Not Confirmed
0000100D	Not Confirmed
0000112A	Not Confirmed
00001244	Not Confirmed
0000218A	Not Confirmed
00002044	Not Confirmed
000029A3	Not Confirmed
00002C7A	Not Confirmed
000041C4	Not Confirmed
00004E32	Not Confirmed

Hubs awaiting removal :

0

ObjNum

Find

Refresh bounded hubs

Bounded hubs

Hub Id	Object num	State	cloud sync
0000112A	0	No object number	OK
000029A3	0	No object number	OK
00002044	0	No object number	OK
00004E32	0	No object number	OK
0000218A	0	No object number	OK
00002C7A	0	No object number	OK
000041C4	0	No object number	OK
00001022	1	Active	OK

Bounded Hubs :

8

Active Hubs :

1

Create local bound

Delete bounded hub

Move to inactive

Add to active

-->

Figure 16. Search criteria selection button

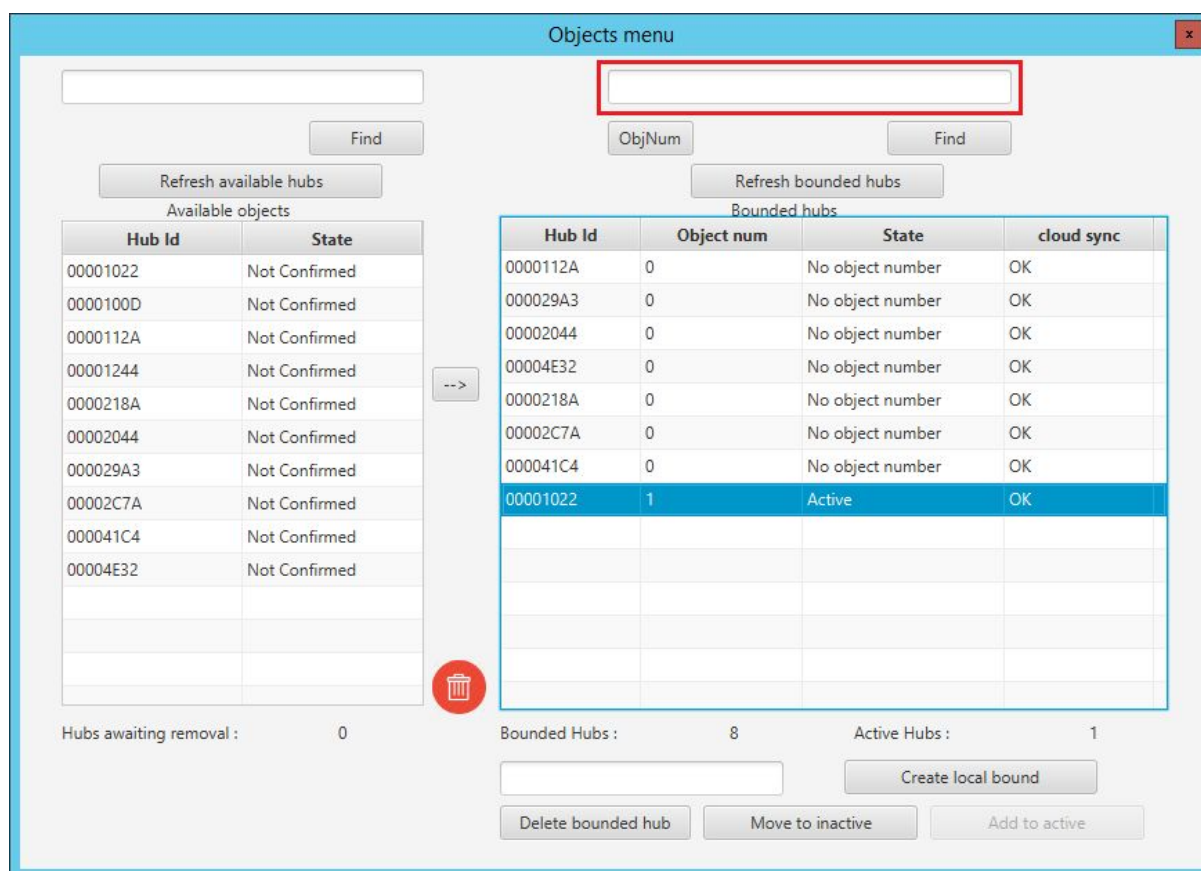


Figure 17. Entry field for search value

To start the search, press "Search" button after entering the necessary value. The object found will be selected.

Direct connection

Beginning with Hub OS 2.0 firmware, it has been possible to monitor events from Ajax Hub bypassing our cloud servers.

After updating Ajax Hub to new version, new settings will appear in the mobile application, one of which is for direct connection.

To set direct monitoring, use the item "Console monitoring" in Ajax Hub settings. Set your IP address and an external port, which will be forwarded to the 3031 internal port of your server. This is the port that monitors Translator.

Specify the data channel to be used to connect Ajax Hub to your server.

What should I do if port 3031 is already occupied?

If the required port is occupied, you have to make changes in our application.

To do this:

1) find the folder where our application is installed. Open the **Settings** folder, find the **clientSettings** file and open it using Notepad.

2) add the following 2 lines at the end of the file (copy them from below and paste into the document):

```
#DIRECT CONNECT PARTNER PORT  
directConnectPort = 3031
```

3) specify any free port instead of **3031**. Then, save the changes and close the **clientSettings** file.

4) Restart Translator.

After restarting, the application will "listen" to the port specified in the file.

How does direct monitoring work?

The process remains the same for adding Ajax Hub to the company and to the Translator list. After setting the IP address and port in Ajax Hub, the central unit will independently establish a direct connection with your Translator. This connection has a higher priority than monitoring via the cloud server. If the direct connection is broken for any reason, Translator starts receiving events from the hub via the server. This is how we provide backup monitoring.

Important! Ajax Hub with Hub OS firmware version 2.0 does not operate with the [web application](#). Proper operation and adjustment are ensured only from mobile applications!